

REMARKS

Favorable reconsideration and allowance of the subject application are respectfully requested in view of the following remarks.

Summary of the Office Action

Claims 7, 9, and 11 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,208,525 to Imasu et al. (hereinafter “Imasu”).

Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Imasu in view of U.S. Patent Publication No. 2003/0011070 to Iijima et al. (hereinafter “Iijima”).

Claim 10 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Imasu.

Summary of the Response to the Office Action

Applicants cancel claims 1-6 without prejudice or disclaimer, amend the abstract, the specification, and claim 7, and add new claims 12-14 by this amendment. Accordingly, claims 7-14 are currently pending.

Abstract

Applicants have amended the abstract to include less than 150 words in view of the Examiner’s reminder.

Claim Rejections Under 35 U.S.C. §§102(b) and 103(a)

Claims 7, 9, and 11 stand rejected under 35 U.S.C. §102(b) as being anticipated by Imasu. These rejections are respectfully traversed for at least the following reasons.

Applicants respectfully submit that Imasu does not anticipate claims 7, 9 and 11 because Imasu does not disclose each and every feature of these claims. For instance, it is respectfully submitted that Imasu fails to teach or suggest the claimed combination as set forth in independent claim 7, as newly-amended, including a package substrate plated with Au having at

least “a second copper plated layer,” “wire bonding pads including Au,” and “solder ball pads including Au.”

Even though the Office Action acknowledges that Imasu does not teach Au plating, the Office Action still alleges that the arrangement shown in FIG. 2 of Imasu includes all the elements set forth in independent claim 7 by asserting that the feature of “Au” as recited in claim 7 as a product-by-process limitation. However, in contrast to the Office Action’s assertions, claim 7, in fact even as originally-presented, recites a package substrate being plated with Au in its preamble and further refers Au in its body. Thus, claim 7 does recite a package substrate plated with Au, which is not taught or suggested by Imasu.

In particular, in contrast to Applicants’ claimed combination, as a whole, Imasu specifically teaches, at column 4, lines 37-39, that the “electrode pad 4A, the wiring 4C, the wiring 2A, the electrode pad 2B and the internal wiring 2C are individually a copper (Cu) film.” Thus, it is respectfully submitted that Imasu does not teach or suggest wire bonding pads that include Au or solder ball pads that include Au, as set forth in Applicants’ claimed combination. It is respectfully noted that the present invention addresses and overcomes problems associated with electrolytic Au plating processes, and therefore, the present claims recite the inclusion of Au.

In addition, no portion of Imasu’s disclosure discusses a second copper plated layer formed on portions of the first copper plated layer in the manner set forth in Applicants’ claimed combination. In fact, Imasu’s electrode pad (4A) is formed directly on the wiring (2A), which is formed directly on the rigid board (2). See, for example, FIG. 2 of Imasu. Thus, the arrangement of Imasu does not include a first copper plated layer, a second copper plated layer, and pads including Au, as set forth in Applicants’ claimed combination.

Accordingly, the cited references further fail to teach or suggest wire bonding pads including Au and not connected to a remnant of a plating lead line, and solder ball pads including Au and not connected to a remnant of a plating lead line, as recited in independent claim 7, as amended.

M.P.E.P. § 2131 states “[t]o anticipate a claim, the reference must teach every element of the claim.” Applicants respectfully submit that since Imasu does not teach or suggest each and every feature of independent claim 7, Imasu does not anticipate claim 7. Further, since claims 9 and 11 depend from claim 7, it is respectfully submitted that Imasu also does not anticipate claims 9 and 11. Accordingly, withdrawal of the rejection of claims 7, 9 and 11 under 35 U.S.C. §102(b) is respectfully requested.

Claim Rejections Under 35 U.S.C. §103(a)

Claim 8 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Imasu in view of Iijima. However, Applicants respectfully submit that claim 8 is allowable at least because its dependence on claim 7 and because Iijima fails to cure the above-mentioned deficiencies of Imasu.

Claim 10 stands rejected under 35 U.S.C. §102(a) as being unpatentable over Imasu. Similarly, Applicants respectfully submit that claim 10 is allowable at least because its dependence on claim 7 and the arguments set forth with respect to the rejections under 35 U.S.C. §102.

New Claims 12-14

Applicants have added new claims 12-14 to further define the invention. Applicants respectfully submit that claims 12-14 are allowable at least because of their respective dependence on claim 7.

Further, Applicants respectfully submit that claims 12-14 are allowable because of the features recited therein. For instance, it is respectfully submitted that none of the applied references teaches or suggests a solder resist covering portions of the wire bonding pads or the solder ball pads, as set forth in claim 13, or a second copper plated layer filling the through holes, as set forth in claim 14. In particular, according to a disclosed embodiment of the present invention, the solder resist is formed after the wiring bonding pads or the solder ball pads are formed, such that the solder resist covers portions of the wire bonding pads or the solder ball pads.

Conclusion

In view of the foregoing, withdrawal of the rejections and allowance of the pending claims are earnestly solicited. Should there remain any questions or comments regarding this response or the application in general, the Examiner is urged to contact the undersigned at the number listed below.

If there are any other fees due in connection with the filing of this response, please charge the fees to our Deposit Account No. 50-0310. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and the fee should also be charged to our Deposit Account.

Respectfully submitted,

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